OAK RIDGE NATIONAL LABORATORY
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

UNIVERSITY OF MARYLAND

CHP Integration Test Center – Objectives and Professional Collaboration

Objectives

- Integrate equipment into CHP systems
- Integrate CHP systems into commercial buildings
- Demonstrate performance potential in an occupied building
- Test advanced control systems
- Provide essential technical knowledge to manufacturing partners

Professional Collaboration

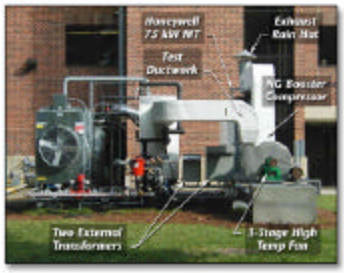
- ORNL – Sensors (CO_2 and Humidity)
- PNNL – Whole Building Diagnostician
- NREL – Liquid Desiccant Components
- Energy Storage (DOE, Energetics, NRECA, Sandia – Distributed Energy Technology Simulator)
- Southern Research Institute, EPA, Honeywell – Independent Verification of Micro-Turbine Performance and Emissions
- ORNL – Integrated System Performance Evaluation

CHP System 2 Changes

2001 – Honeywell MT System	2002 – Capstone MT System
High temp fan needed (5 kW)	No high temp fan (0 kW)
External high voltage transformer (~4 kW)	No external transformer needed (0 kW)
Piston compressor (4 kW & loud)	Scroll compressor w/VFD on DC bus (1 kW & quiet)
500° F Exhaust temp, no MA fan needed	615° F Exhaust temp, need MA fan* (<1 kW)
No pressure drop imposed (0 kW loss on MT)	2"-2.5" w.c. backpressure (3 kW loss on MT)
~13 kW loss	~5 kW loss
High temp fan controlled with 3-speed motor	MA fan controlled with fully modulating VFD
Low Sound	Low Sound (will add prototype inlet silencer)

* MA fan needed to lower exhaust temp to 520° F to meet chiller requirements.

System 2 - 2001



System 2 - 2002

Plenum Box Modification

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DER DISTRIBUTED ENERGY RESOURCES